

Trachyuropodid mites of the Carpathian Basin (Acari Uropodina: Trachyuropodidae)

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Abstract. Species of the family Trachyuropodidae occurring in the Carpathian Basin are summarized. Diagnoses of the family, subfamilies, genera and species are given, and keys to genera and species are provided. A new species, *Urojanetiella dentata* sp. n. is described. New combinations are: *Urotrachys formicariasimilis* (Hirschmann, 1975), *Urojanetia pecinai* (Hirschmann, 1976) and *Urojanetia cristiceps* (Canestrini, 1884). With 25 figures.

INTRODUCTION

In the suborder Uropodina the family Trachyuropodidae is one of the most widely distributed families. The family was erected by Berlese (1917) who described several genera belonging to this family. Later Hirschmann (1961) revised the group in his specific system ("Gangsystematik der Parasitiformes") and united them in two large, world-wide distributed catch-all genera. The species with well sclerotised dorsal shield were placed in the genus *Trachyuropoda*, while those without sclerotised dorsal shield in the genus *Oplitis*. Later, Hirschmann (1976 a) divided these two genera into several species groups. Recently about 100 species are known from all over the world occurring mainly in ant nests (Wiśniewski, 1993).

Only a few tachyuropodid records have been published from Hungary and the Carpathian Basin so far. The first Hungarian data are by Balogh (1938 a), who found two species, *Urojanetia excavata* (Wasm.) and *Uroplitella minutissima* Berl. in ant nests. In the very same year, Balogh (1938 b) published new records of other three species.

Hirschmann (1981) reported on two *Oplitis* species from the Hortobágy National Park, and prepared a list of the Uropodina species of the Bátörliget Nature Reserve, which contained only *Oplitis* species (Hirschmann, 1990). Wiśniewski and Hirschmann (1995) described a new species

from the material collected in Bátörliget (*Oplitis mahunkai* Wiśniewski & Hirschmann, 1995), and Wiśniewski (1996) published the occurrence of *Oplitis conspicua* (Berlese, 1903) in the Bükk National Park.

Recently, Kentschán (2002 a) found five *Trachyuropoda* species new to the fauna of Hungary, and listed (2002 b) four Trachyuropodid species from county Komárom-Esztergom. Following this work, several other sporadic occurrences of trachyuropodid species were recorded (Kentschán, 2003 a, 2003 b, 2003 c, 2005), until Kentschán (2007) summarized all the Uropodina species known in Hungary.

In Slovakia the first record of this family was published by Pecina (1980). Mašán and Kaluz (1997) reported on eight trachyuropodid species from this country. In his recent monograph of the Slovakian Uropodina mites, Mašán (2001) summarized all the known records of trachyuropodid species from Slovakia.

Among the surrounding countries, Ukraine is less investigated than Hungary and Slovakia. Only Wiśniewski (1993) mentioned one trachyuropodid species, and later Kentschán (2004 b) described one new species from this country.

In the present paper I will summarize all the tachyuropodid species hitherto known from the Carpathian Basin, and provide keys to the genera and species.

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MATERIALS AND METHODS

The specimens were studied with traditional methods. They were cleared in lactic acid, stored in alcohol, and deposited in the Soil Zoology Collections of the Hungarian Natural History Museum, Budapest. Measurements are given in micrometers. Drawings were made with camera lucida.

RESULTS

Family TRACHYUROPODIDAE Berlese, 1917

Diagnosis. Gnathosoma: Corniculi horn-like, laciniae with several branches possessing long hairs. Hypostomal setae as follows: *h1* smooth, *h2*, *h3* and *h4* with serrated margin or spines. Chelicerae with nodus. Base of tritosternum narrow, its laciniae with four branches, two central branches with hairs on their apical part.

a) Subfamily Trachyuropodinae Berlese, 1917

Diagnosis. Dorsal, marginal and ventral shield strongly sclerotised. Genital shield of female scutiform. Epistome triangular with hairs on its margin.

Remarks. All species of this subfamily were placed previously in the genus *Trachyuropoda* (Hirschmann, 1961). Several acarologists (e.g. Błoszyk, 1999; Farrier & Hennessey, 1996) have not accepted this large catchall genus. I do not agree with Hirschmann's conception as well, and think that on the score of the structure of dorsal shield these species belong to several well separated genera (see the diagnoses below).

Key to genera of Trachyuropodinae

- 1 (2) Dorsal shield with two anvil-shaped bulges on the marginal region and some weakly sclerotised lines between the two bulges..... *Urotrachys* Berlese
- 2 (1) Dorsal shield without anvil-shaped bulges and weakly sclerotised lines
- 3 (4) Dorsal shield without well sclerotised lines..... *Urojanetia* Berlese
- 4 (3) Dorsal shield with well sclerotised lines

- 5 (6) Dorsal shield with long well sclerotised lines and wide marginal shield..... *Leonardiella* Berlese
- 6 (5) Dorsal shield without wide marginal shield, dorsal shield long or divided by well sclerotised lines..... *Trachyuropoda* Berlese

Genus *Urotrachys* Berlese, 1903

Trachyuropoda: Hirschmann 1990: 706 (part.), Mašán 2001: 237-238 (part.), Kontschán 2004b: 79, 236-237 (part.).

Diagnosis. Shape oval, posterior margin rounded. Dorsal shield with some well sclerotised lines. Two lines on the anterior region and one X-shaped well sclerotised bulge on the central region, furthermore two strongly sclerotised anvil-shaped bulges on the marginal region. Margin of the anvil-shaped bulges smooth or with finger-like processes. Some pilose setae near and on the anvil-shaped bulges. Some weakly sclerotised lines placed between the two anvil-shaped bulges. Ornamentation of dorsal shield alveolar.

Type species: *Urotrachys formicaria* (Lubbock, 1881).

Key to species of *Urotrachys*

- 1 (2) Margin of anvil-shaped bulges smooth..... *formicaria* (Lubbock)
- 2 (1) Margin of anvil-shaped bulges with finger-like processes..... *formicariasimilis* (Hirschmann)

Urotrachys formicaria (Lubbock, 1881) (Fig. 1)

Uropoda formicaria Lubbock, 1881: 386.

Trachyuropoda formicaria: Hirschmann 1990: 706, Mašán 2001: 237-238, Kontschán 2004b: 79. Kontschán 2005: 115.

Diagnosis. Length of idiosoma 1020-1090 µm, width 680-750 µm. Shape oval, posterior margin rounded. Margin of anvil-shaped bulges smooth. Genital shield of female linguli-form, bearing short spines on its anterior margin.

Distribution. Europe.

Previous records from the Carpathian Basin.
Hungary: Bátorkliget (Hirschmann, 1990); Slovakia: Borská Nízina, Malé Karpaty, Povazsky Ino-

vec, Kremnické Vrchy, Slovensky Kras (Mašán, 2001); Ukraine: Krasznaja (Kontschán, 2004).

New records. Hungary: Magyarszombatfa, on marshland from soil, 23.05.2002, leg. S. Mahunka & L. Mahunka-Papp; Kercaszomor, nest of ants, 19.08.2004, leg. L. Peregovits. Romania: Transylvania, Torocko, Székelykő, from soil, 20.08.1999, leg. F. Mészáros; Maramures county, Maramures Mts, Petrova, Frumuseana, in pine-beech mixed forest. 25.05.2006, leg. L. Dányi, M. Földvári, J. Kontschán & D. Murányi

***Urotrachys formicariasimilis* (Hirschmann, 1975) comb. n.
(Fig. 2)**

Trachyuropoda formicariasimilis Hirschmann, 1975: 104, Mašán 2001: 236-237.

Diagnosis. Length of idiosoma 870-940 µm, width 610-660 µm. Shape oval, posterior margin rounded. Margin of anvil-shaped bulges with finger-like processes. Genital shield of female linguli-form; short spines can be seen on angular process of its anterior margin.

Distribution. Ukraine, Slovakia, Hungary.

Previous records from the Carpathian Basin. Hungary: Csesztreg (Kontschán, 2006). Slovakia: Bukovske Vrchy, Chvojnická Pahorkatina, Veporské Vrchy (Mašán, 2001).

Genus *Urojanetia* Berlese, 1917

Trachyuropoda: Hirschmann 1990: 706, Mašán 2001: 233-238, Kontschán 2002b: 51-52, 2002c: 347. Kontschán 2003a: 118, Kontschán 2003b: 55.

Diagnosis. Shape oval, posterior margin rounded. Dorsal shield without well sclerotised bulges or only with small well sclerotised semi-circular, S- and C-shaped, tooth-like bulges and short lines. The ornamentation of dorsal shield al-

veolar, several T-like setae can be seen on dorsal shield.

Type species: *Urojanetia coccinea* (Michael, 1891).

Key to species of Urojanetia

- 1 (6) Well sclerotised bulges on dorsal shield present
- 2 (3) One pair of large tooth-like bulges on dorsal shield.....*excavata* (Wasmann)
- 3 (2) Small bulges on dorsal shield
- 4 (5) One pair of S- and one pair of C-shaped, well sclerotised short lines on dorsal shield.....*coccinea* (Michael)
- 5 (4) Three pairs of tooth-like strongly sclerotised bulges on dorsal shield.....*dentata* n. sp.
- 6 (1) Dorsal shield without well sclerotised bulges
- 7 (8) With small half-ring-shaped sculpture near marginal part of dorsal shield*pecinai* (Hirschmann)
- 8 (7) Without small half-ring-shaped sculpture near marginal part of dorsal shield.....*cristiceps* (Canestrini)

***Urojanetia coccinea* (Michael, 1891)
(Fig. 3)**

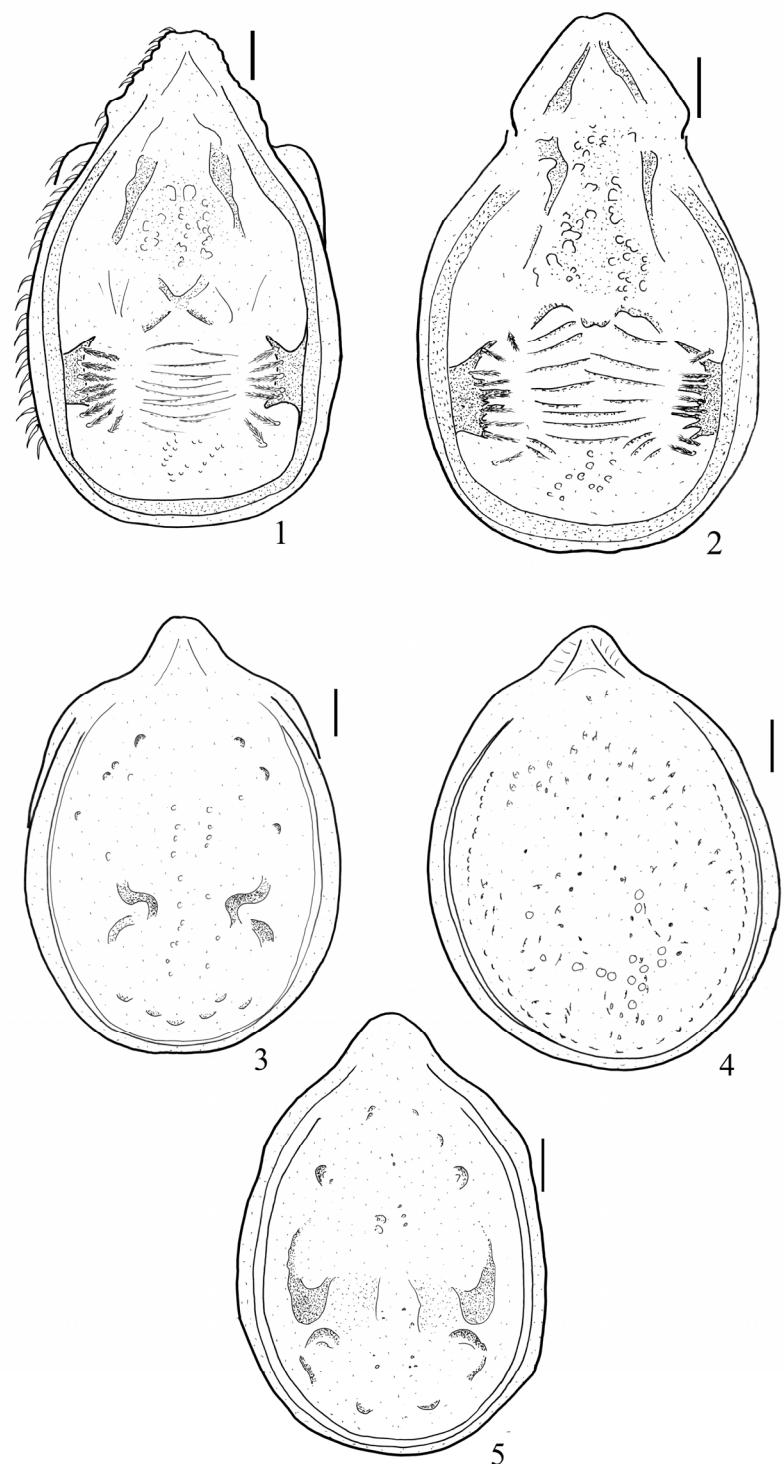
Uropoda coccinea Michael, 1891: 646.

Trachyuropoda coccinea: Mašán 2001: 233-235, Kontschán 2002b: 51-52, 2002c: 347.

Diagnosis. Length of idiosoma 760-860 µm, width 590-620 µm. Shape oval, posterior margin rounded. Dorsal shield with some semicircular, well-sclerotised bulges on anterior and caudal part of dorsal shield. One pair of S-shaped and one pair of C-shaped, well sclerotised, short lines placed at level of coxae 4 on dorsal shield. Central part of dorsal shield bearing alveolar pattern.

Distribution. Europe.

Previous records from the Carpathian Basin. Hungary: Budai Hegység (Kontschán, 2002b), Bársnyos (Kontschán, 2002c). Slovakia: Borská nízina, Malé Karpaty, Nízke Tatry, Povazsky Inovec, Slovensky kras, Vychodoslovenská rovina, Pozsky Inovec (Mašán, 2001).



Figures 1-5. *Urotrachys* and *Urojanetia* species from the Carpathian Basin. 1 = *Urotrachys formicaria* (Lubbock, 1881), 2 = *Urotrachys formicariasimilis* (Hirschmann, 1975), 3 = *Urojanetia coccinea* (Michael, 1891), 4 = *Urojanetia pecinai* (Hirschmann, 1976), 5 = *Urojanetia excavata* (Wasmann, 1899). (Scale bars 100 µm each)

***Urojanetia pecinai* (Hirschmann, 1976) comb. n.
(Fig. 4)**

Trachyuropoda pecinai Hirschmann, 1976a: 16.

Diagnosis. Length of idiosoma 760-860 µm, width 590-620. Shape oval, posterior margin rounded. Dorsal shield without well sclerotised bulges, only near marginal part of dorsal shield bearing small semicircular sculpture. Central part of dorsal shield with alveolar pattern.

Distribution. Czech Republic, Hungary.

New records. Hungary: Nagykovácsi, Nagyszénás, southern slope, from nest of ants, 10.04.1961, leg. S. Mahunka & É. Molnos; Nagykovácsi, Nagyszénás, northern slope, ant nest, 10.04. 1961, leg. S. Mahunka & É. Molnos; Jósvafő, ant nest, 09.06.1973, leg. S. Mahunka & L. Mahunka-Papp. These are the first records from Hungary.

***Urojanetia cristiceps* (Canestrini, 1884) comb. n.**

Uropoda cristiceps Canestrini, 1884: 720.

Trachyuropoda cristiceps: Hirschmann 1990: 706, Kontschán 2003a: 118.

Diagnosis. Length of idiosoma 770-800 µm, width 570-600 µm. Shape oval, posterior margin rounded. Similar to *U. pecinai*, but dorsal shield without well sclerotised bulges, and small semi-circular sculpture near marginal part of dorsal shield lacking.

Distribution. Italy, Austria, France, Germany, Hungary.

Previous records from the Carpathian Basin. Hungary: Bátorliget (Hirschmann, 1990); South-Transdanubian (Kontschán, 2003 c).

New records. Hungary: Budapest, Hármashártárhely, from anthill under a stone, 15.03.1961, leg. S. Mahunka & É. Molnos.

***Urojanetia excavata* (Wasmann, 1899)
(Fig. 5)**

Glyphopsis coccinea var. *excavata* Wasmann, 1899: 168-169.

Urajanetia excavata: Balogh 1938a: 108, Balogh 1938b: 71.

Trachyuropoda excavata: Mašán 2001: 235, Kontschán 2003a: 118, Kontschán 2003b: 55.

Diagnosis. Length of idiosoma 730-850 µm, width 460-540 µm. Shape oval, posterior margin rounded. Apical part of dorsal shield with one or two pairs of circular, well sclerotised bulges. One pair of large tooth-like, well sclerotised bulges on the central part of the dorsal shield. Central region with one converse Y-like and one U-like, well sclerotised line. Posterior part of dorsal shield with one pair of larger, and one pair of smaller, well sclerotised semicircular bulges.

Distribution. Europe.

Previous records from the Carpathian Basin. Hungary: Budapest (Balogh, 1938 a, b), South-Transdanubian (Kontschán, 2003 c), Aggtelek National Park (Kontschán, 2003 b). Slovakia: Chvojnická pahorkatina, Malé Karpaty, Tríbec (Mašán, 2001).

New records. Hungary: Kiskunhalas, Zsanai Újvilág TSZ, from soil, 01.06.1963, leg. T. Kasai.

***Urojanetia dentata* sp. n.**

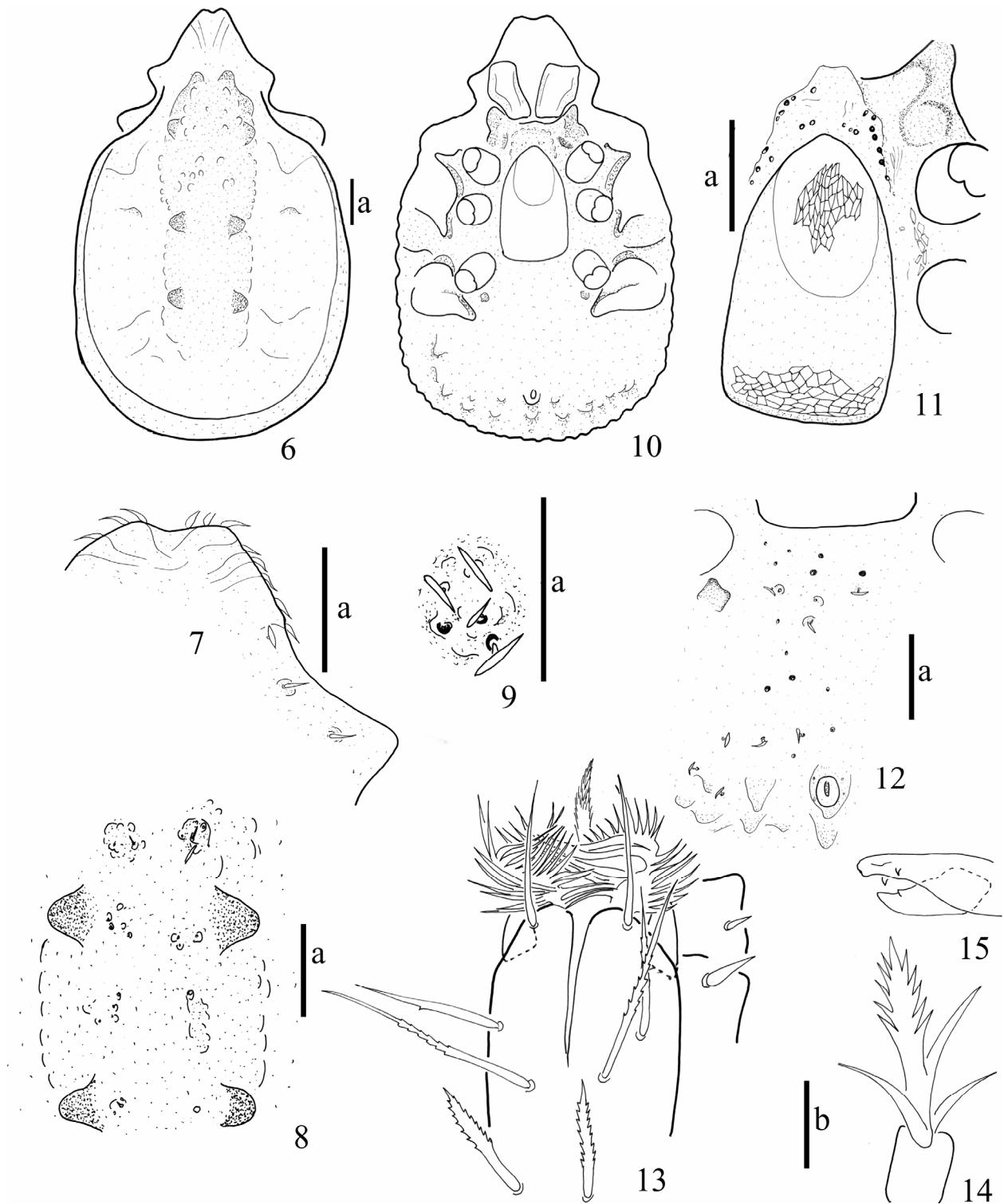
(Figs. 6-15)

Material examined. Holotype: one female, Tata, Hungary, from pine forest, 02.02.1982, leg. T. Vásárhelyi.

Diagnosis. Idiosoma well sclerotised. Three tooth-like strongly sclerotised bulges on the central part of dorsal shield. Near these bulges there are several small humps, which bear T-form setae. Marginal setae spiniform, all dorsal and ventral setae short and T-form. Ornamentation of dorsal and ventroanal shield lacking, sculpture of genital shield reticulate.

Description. Female (n = 1). Length of idiosoma 940 µm, width 610 µm. Shape oval, posterior margin rounded.

Dorsal side (Fig. 6). Dorsal and marginal shield fused. Dorsal shield with well sclerotised central region, which bears three pairs of strongly sclerotised tooth-like bulges (Fig. 8). Near the bulges there are small humps, which bear T-form setae (Fig. 9). Anterior part of dorsal shield with



Figures 6-15. *Urojanetia dentata* n. sp. 6 = dorsal view, 7 = apical part of dorsal side, 8 = central region of dorsal side, 9 = small humps with T-form setae, 10 = ventral view, 11 = sternal region, 12 = venteroanal region, 13 = ventral view of gnathosoma, 14 = tritosternum, 15 = chelicera. (Scale bars: a: 100 µm, b: 20 µm)

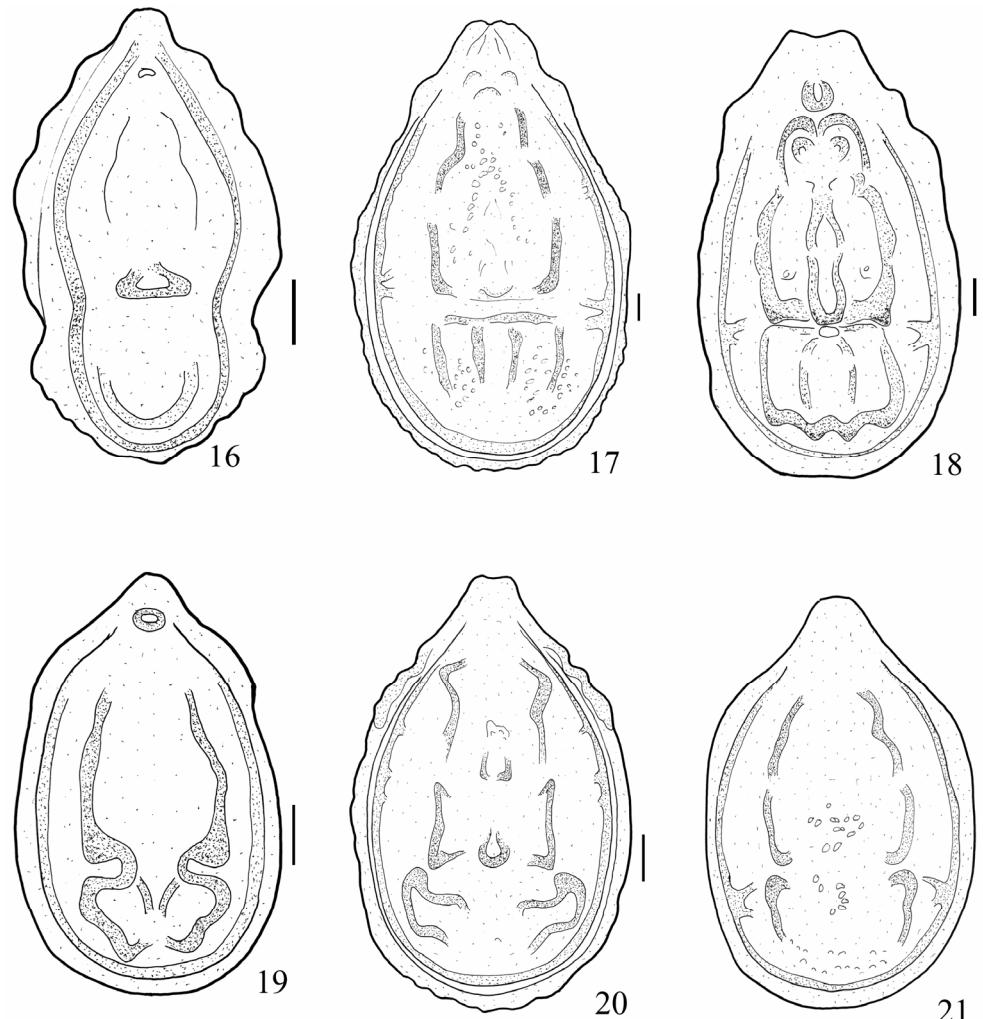
some spiniform and several T-form setae (Fig. 17). All marginal setae spiniform. Ornamentation of dorsal and marginal shield lacking.

Ventral side (Fig. 10). Sternal shield near the anterior margin of genital shield strongly sclerotised. This region bears several circle-shaped ornamentalations which might be the basis of T-form setae. Sternal setae not clearly visible. Ornamentation of sternal shield between coxae reticulate (Fig. 11). Ventoanal shield with several T-form setae, and on posterior region with several well sclerotised V-like bulges (Fig. 12).

Stigmae and peritreme not clearly visible.

Genital shield located between coxae 2 and 4, scutiform with reticulate pattern and without processes (Fig. 11).

Gnathosoma (Fig. 13). Corniculi horn-like, laciniae long with some branches bearing several long hairs. Hypostomal setae as follows: $h1$ long, smooth and setiform, $h2$, $h3$ and $h4$ with serrated margin, $h2$ and $h4$ as long as $h1$, $h3$ longer than $h2$. Labrum with short hairs. Epistome not clearly visible. Tritosternum with narrow basis, laciniae with four branches, one of them with serrated margin (Fig. 14). Chelicerae with nodus. Digitus fixus bearing one tooth (Fig. 15).



Figures 16-21. Trachyuropodid mites from the Carpathian Basin. 16 = *Leonardiella riccardiana* (Leonardi, 1895), 17 = *Trachyuropoda bostocki* (Michael, 1894), 18 = *Trachyuropoda myrmecophila* Wiśniewski & Hirschmann, 1992, 19 = *Trachyuropoda hirschmanni* Pecina, 1980, 20 = *Trachyuropoda troguloides* (Can. & Franz., 1877), 21 = *Trachyuropoda wasmanniana* Berlese, 1903. (Scale bars 100 µm each)

Male, nymphs and larva are unknown.

Etymology. The name of the new species refers to the three pairs of strongly sclerotised tooth-like bulges.

Genus *Leonardiella* Berlese, 1904

Trachyuropoda: Kontschán 2002b: 51 (part.), Kontschán 2002c: 347 (part.), Kontschán 2003b: 55 (part.), Mašán 2001: 238-239 (part.).

Diagnosis. Shape oblong, posterior margin rounded. Dorsal shield with one long, well sclerotised line, marginal shield wide.

Type species: *Leonardiella canestriana* Berlese, 1891

Leonardiella riccardiana (Leonardi, 1895)

(Fig. 16)

Uropoda riccardiana Leonardi, 1895: 318.

Trachyuropoda riccardina (sic!): Kontschán 2002b: 51; Kontschán 2002c: 347;

Trachyuropoda riccardiana: Kontschán 2003b: 55, Mašán 2001: 238-239.

Diagnosis. Length of idiosoma 680-720 µm, width 420-450 µm. Shape oblong, posterior margin rounded. Dorsal shield with one long, well sclerotised line, marginal shield wide. Central part of dorsal shield with one well sclerotised semicircular bulge.

Distribution. Austria, Slovakia, Romania, Italy, Hungary.

Previous records from the Carpathian Basin. Hungary: Budai Hegység (Kontschán, 2002 b), Bársnyos (Kontschán, 2002 c), Aggteleki Nemzeti Park (Kontschán, 2003 b). Slovakia: Malé Karpaty, Povazsky Inovec, Slovensky Kras (Mašán, 2001).

New records. Hungary: Vértes Mts., Gánt, ant nest, 09.08.2002, leg. J. Kontschán; Csevharaszt, ant nest, 07.05.2002, leg. J. Kontschán; Aranyosgadány, Viszló völgy, ant nest, 15.08.1976, leg. S. Mahunka & L. Mahunka-Papp; Kám, wet meadow, 09.04.1964, leg. T. Kassai & S. Mahunka; Roma-

nia: Transylvania, Tordai hasadék, from ant nest, 28.07.1992, leg. L. Peregovits.

Genus *Trachyuropoda* Berlese, 1888

Diagnosis. Shape oblong or oval, posterior margin rounded. Dorsal shield with several long, different-shaped lines, semicircular bulges and furrows. Several T-form setae can be found on dorsal shield.

Type species: *Trachyuropoda festiva* (Berlese, 1888).

Key to species of *Trachyuropoda*

- 1 (8) Long, well sclerotised dorsal lines divided into smaller parts
- 2 (5) U- and Y-shaped bulges between long, well sclerotised lines
- 3 (4) Third part of well sclerotised lines converse U-form.....*trogloides* (Can. & Franz)
- 4 (3) Posterior part of well sclerotised lines in contact by one long, undulate lateral line.....
myrmecophila Wiśniewski & Hirschmann
- 5 (2) Not bulges between long, well sclerotised lines
- 6 (7) Additional two well sclerotized lines between third part of well sclerotised lines.....
bostocki (Michael)
- 7 (6) No additional well sclerotized lines between third part of well sclerotised lines.....
wasmanniana Berlese
- 8 (1) Long, well sclerotised dorsal lines not divided.....
hirschmanni Pecina

Trachyuropoda bostocki (Michael, 1894)

(Fig. 17)

Glyphopsis Bostocki Michael, 1894: 301-303.

Trachyuropoda rostocki (sic!): Balogh 1938b: 71.

Trachyuropoda bostocki: Mašán 2001: 240-241.

Diagnosis. Length of idiosoma 1600-1750 µm, width 1100-1200 µm. Shape oval, posterior margin rounded. The apical part of dorsal shield with three well sclerotised semicircular bulges. Central region of dorsal shield with two well sclerotised long lines divided into two or three parts. Posterior part of dorsal shield with two pairs of well sclerotised lines; near their anterior part there is a

transversal, well sclerotised line in a furrow. Central and posterior part of dorsal shield with alveolar ornamentation.

Distribution. The Netherlands, United Kingdom, Luxemburg, Austria, Hungary.

Previous records from the Carpathian Basin. Hungary: Pilisszentkereszt (Balogh, 1938). Slovakia: Povazsky Inovec, Slovensky Kras (Mašán, 2001).

New records. Hungary: Szanda, Szanda-hegy, from beech forest, 14.05.1994, leg. O. Merkl; Bakony, Réde, 11.09.2002, leg. J. Kontschán.

***Trachyuropoda myrmecophila* Wiśniewski & Hirschmann, 1992**
(Fig. 18)

Trachyuropoda myrmecophila Wiśniewski & Hirschmann, 1992: 8-15, Kontschán 2002b: 51, Mašán 2001: 241-242.

Diagnosis. Length of idiosoma 1250-1400 µm, width 800-850 µm. Shape oblong, posterior margin rounded. Apical part of dorsal shield with one circular and two semicircular well sclerotised bulges. Marginal part of central region of dorsal shield with two well sclerotised, long lines divided into two or three parts. Central part of central region with one converse Y-shaped and one U-shaped, well sclerotised line. Posterior part of dorsal shield with two pairs of well sclerotised lines. Posterior part of two marginal lines in contact by one long, undulate lateral line.

Distribution. Poland, Slovakia, Hungary.

Previous records from the Carpathian Basin. Hungary: Csévhárszt (Kontschán, 2002 b). Slovakia: Povozsky Inovec, Podunajská Rovina (Mašán, 2001).

***Trachyuropoda hirschmanni* Pecina, 1980**
(Fig. 19)

Trachyuropoda hirschmanni Pecina, 1980: 373-376, Kontschán 2002b: 54, Mašán 2001: 235-236.

Diagnosis. Length of idiosoma 660-680 µm, width 420-480 µm. Shape oval, posterior margin rounded. The apical part of dorsal shield with one

circular, well-sclerotised bulge. One pair of long, well-sclerotised lines of large S-form on their posterior region can be found on dorsal shield.

Distribution. Europe.

Previous records from the Carpathian Basin. Hungary: Budai Hegység (Kontschán, 2002 b). Slovakia: Malé Karpaty (Mašán, 2001).

New records. Romania: Transylvania, Tordai hasadék, from ant nest, 28.07.1992, leg. L. Peregovits; Transylvania, Tordai hasadék, from soil, 28.07.1992, leg. L. Peregovits.

***Trachyuropoda troguloides* (Can. & Franz., 1877)**
(Fig. 20)

Trachynotus troguloides Canestrini & Fanzago, 1877: 62. Kontschán 2002c: 347, Mašán 2001: 239-240.

Diagnosis. Length of idiosoma 950-1050 µm, width 610-760 µm. Shape oval, posterior margin rounded. One pair of long, well sclerotised lines can be found on dorsal shield, divided into three parts. First part can be found on apical part of dorsal shield, its shape similar to number 7, second part similar to number 1 and third part similar to converse U. First and second pairs of lines can be seen as two U-shaped, well sclerotised bulges.

Distribution. West and Central Europe.

Previous records from the Carpathian Basin. Hungary: Bársnyos (Kontschán, 2002 c); South Transdanubian (Kontschán, 2003 c). Slovakia: Východoslovenská Rovina, Slovensky Kras (Mašán, 2001).

New records. Hungary: Nagykovácsi, 09.07.1978, leg. L. Zombori.

***Trachyuropoda wasmanniana* Berlese, 1903**
(Fig. 21)

Trachyuropoda (Janetiella) wasmanniana Berlese, 1903: 249-250.

Trachyuropoda wasmannia (sic!) Kontschán 2002b: 53.

Diagnosis. Length of idiosoma 980-1020 µm, width 700-780 µm. Shape oval, posterior margin rounded. One pair of long well sclerotised lines

on dorsal shield, divided into three parts. Central and posterior part of dorsal shield with alveolar ornamentations.

Distribution. Europe.

Previous records from the Carpathian Basin.
Hungary: Csévháraszt (Kontschán, 2002 b).

b) Subfamily **Oplitinae Hirschmann & Zirn-giebl-Nicol, 1962**

Diagnosis. Idiosoma oval or circular. Dorsal, marginal and ventral shield not strongly sclerotised. Dorsal shield without strongly sclerotised lines, rings and furrows. Genital shield of female large, oval. Epistome with three branches, their margin serrated.

Key to genera of Oplitinae

- 1 (2) Perigenital line and preanal line present.....
Oplitis Berlese
2 (1) Perigenital line and preanal line absent.....
Urodiscella Berlese

Genus **Urodiscella Berlese, 1903**

Oplitis: Hirschmann 1981: 341, Mašán 2001: 247-249.

Diagnosis. Idiosoma oval, posterior margin rounded, anterior margin peaky. Genital shield oval, without perigenital line. Ventroanal shield with numerous smooth, short and needle-like setae.

Type species: *Urodiscella alophora* Berlese, 1903.

Key to species of Urodiscella

- 1 (2) Two lines on anterior region of sternal shield absent.....*philoctena* (Touessart)
2 (1) Two lines on anterior region of sternal shield present
3 (4) Posterior part of genital shield of female without ornamentation.....*schmitzi* (Kneissl)
4 (3) Posterior part of genital shield of female with alveolar ornamentation.....*wasmanni* (Kneissl)

***Urodiscella philocetna* (Touessart, 1902)**

Uropoda philocetna Touessart, 1902: 36-38.
Urodiscella philocetna: Balogh 1938b: 71.

Diagnosis. Length of idiosoma 550-570 µm, width 440-450 µm. Shape oval, posterior margin rounded. Sternal and ventroanal shield without sculpture, all sternal and ventroanal setae short, smooth and needle-like. Anterior part of sternal shield without lines. Genital shield of female large, oval, anterior region bearing reticulate ornamentation. Peritreme hook-like.

Distribution. France, United Kingdom, Ireland, Poland, Hungary.

Previous records from the Carpathian Basin.
Hungary: Pilisszentkereszt (Balogh, 1938 b).

***Urodiscella schmitzi* (Kneissl, 1908)**

Uropoda philocetna var. *schmitzi* Kneissl, 1908: 226-229.
Oplitis schmitzi: Hirschmann 1981: 341, Mašán 2001: 248-249.

Diagnosis. Length of idiosoma 500-600 µm, width 400-430 µm. Shape oval, posterior margin rounded. Sternal and ventroanal shield without sculpture, all sternal and ventroanal setae short, smooth and needle-like. Two lines on anterior part of sternal shield. Genital shield of female large, oval, anterior region with reticulate ornamentation. Peritreme hook-shaped.

Distribution. The Netherlands, Spain, Poland, Slovakia.

Previous records from the Carpathian Basin.
Hungary: Hortobágyi Nemzeti Park (Hirschmann, 1981). Slovakia: Podunajská rovina, Trnavská Pahorkatina, Malé Karpaty, Slovensky Kras (Mašán, 2001).

***Urodiscella wasmanni* (Kneissl, 1907)**
(Fig. 22)

Urobovella wasmanni Kneissl, 1907: 190-191.
Oplitis wasmanni: Mašán 2001: 247-248.

Diagnosis. Length of idiosoma 460-500 µm,

width 390-420 µm. Shape oval, posterior margin rounded. Sternal and ventroanal shield without sculpture, all sternal and ventroanal setae short, smooth and needle-like. Two lines present on anterior part of sternal shield. Genital shield of female large, oval, anterior region with reticulate ornamentation, posterior region with alveolar ornamentation. Peritreme hook-form.

Distribution. Germany, Spain, Poland, Romania, Slovakia, Hungary.

Previous records from the Carpathian Basin. Slovakia: Borská nízina, Bukovské vrchy, Polana, Veporské vrchy (Mašán, 2001).

New records. Hungary: Kercaszomor, ant nest, 19.08.2004, leg. L. Peregovits. Romania: Transylvania, Torocko, Székelykő, from soil, 20.08. 1999, leg. F. Mészáros.

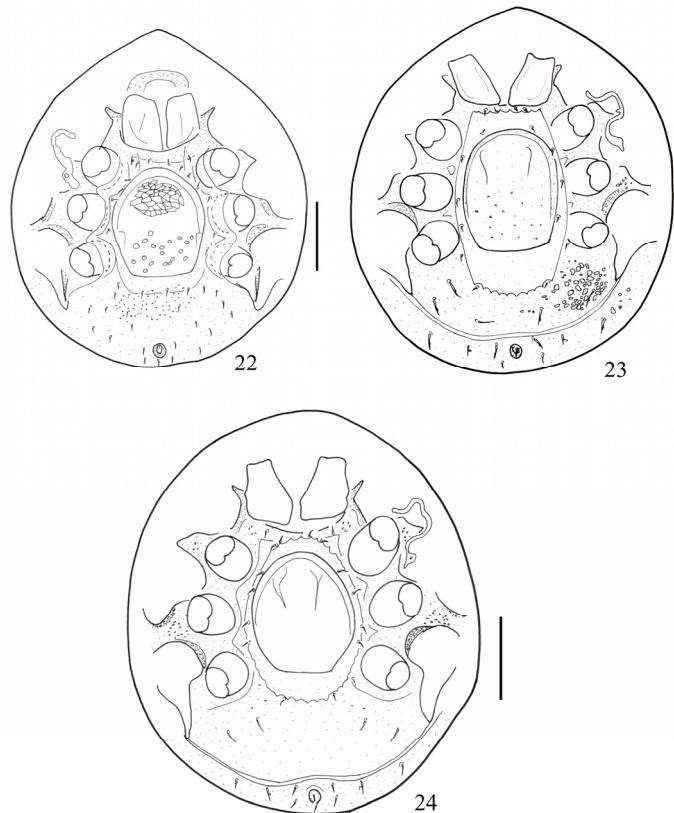
Genus *Oplitis* Berlese, 1884

Diagnosis. Idiosoma oval, posterior and anterior margin rounded. Genital shield oval, with perigenital line. Ventroanal shield with preanal line and 2-6 pairs of ventroanal setae.

Type species: *Oplitis paradoxa* (Canestrini & Berlese, 1884).

Key to species of *Oplitis*

- 1 (4) All perigenital lines undulate
- 2 (3) Peritreme U-shaped.....*conspicua* (Berlese)
- 3 (2) Peritreme M-shaped.....*pecinai* Hirschmann
- 4 (1) Only anterior and posterior genital lines undulate
- 5 (6) Peritreme M-shaped.....*leonardiana* (Berlese)
- 6 (5) Peritreme U-shaped



Figures 22-24: Oplitinae mites from the Carpathian Basin: 22: *Urodiscella wasmanni* (Kneissl, 1907), 23: *Oplitis pecinai* (Hirschmann, 1984), 24: *Oplitis minutissima* (Berlese, 1903). (Scale bars 100 µm each).

- 7 (8) Ventroanal shield with small alveolar ornamentations.....*mahunkai* Wiśniewski & Hirschmann
8 (7) Ventroanal shield with both smaller and larger alveolar ornamentations.....*minutissima* (Berlese)

***Oplitis conspicua* (Berlese, 1903)**

Uropitella conspicua Berlese, 1903: 250.
Oplitis conspicua: Hirschmann 1981: 341; Hirschmann 1990: 705; Wiśniewski 1996: 485, Mašán 2001: 252.

Diagnosis. Length of idiosoma 440-520 µm, width 370-450 µm. Shape oval, posterior margin rounded. Sternal and ventroanal shield with alveolar ornamentation, all sternal setae short, smooth and needle-like. Ventroanal setae arrow-like. Genital shield of female large, oval, with alveolar ornamentation. All perigenital line undulate. Peritreme U-shaped.

Distribution. Europe.

Previous records from the Carpathian Basin.
Hungary: Hortobágyi Nemzeti Park (Hirschmann, 1981), Bátoraliget (Hirschmann, 1990), Bükk Nemzeti Park (Wiśniewski, 1996). Slovakia: Malé Karpaty, Povazsky Inovec, Tríbec (Mašán, 2001).

***Oplitis pecinai* Hirschmann, 1984**
(Fig. 23)

Oplitis pecinai Hirschmann, 1984: 159, Mašán 2001: 250-252, Kontschán 2004: 300-301.

Diagnosis. Length of idiosoma 440-540 µm, width 380-460 µm. Shape oval, posterior margin rounded. Sternal and ventroanal shield without ornamentation. All sternal setae short, smooth and needle-like. Ventroanal setae needle-like. Genital shield of female large, oval, without ornamentation. All perigenital line undulate. Peritreme M-shaped.

Distribution. Europe.

Previous records from the Carpathian Basin.
Hungary: Gerecse (Kontschán, 2004). Slovakia: Malé Karpaty, Povazsky Inovec, Slovesky kras, Tíbec (Mašán, 2001).

***Oplitis leonardiana* (Berlese, 1903)**

Uropoda leonardiana Berlese, 1903: 20-21.
Oplitis leonardiana: Wiśniewski 1993: 265.

Diagnosis. Length of idiosoma 540-550 µm, width 480-450 µm. Shape oval, posterior margin rounded. Ventroanal setae arrow-like. Genital shield of female large, oval, with alveolar ornamentation. Anterior and posterior margin of perigenital line undulate. Peritreme M-shaped.

Distribution. Italy, Austria, Hungary.

Previous records from the Carpathian Basin.
Hungary (Wiśniewski, 1993).

***Oplitis mahunkai* Wiśniewski & Hirschmann, 1995**

Oplitis mahunkai Wiśniewski & Hirschmann 1995: 215-217.

Diagnosis. Length of idiosoma 410 µm, width 350 µm. Shape oval, posterior margin rounded. Ventroanal setae arrow-like. Genital shield of female large, oval, with alveolar ornamentation. Anterior and posterior margin of perigenital line undulate. Peritreme U-shaped.

Distribution. Hungary.

Previous records from the Carpathian Basin.
Hungary: Bátoraliget (Wiśniewski & Hirschmann, 1995)

***Oplitis minutissima* (Berlese, 1903)**
(Fig. 24)

Uropitella minutissima Berlese, 1903: 318, Balogh 1938a: 108.

Oplitis minutissima: Hirschmann 1990: 705, Mašán 2001: 255-256, Kontschán 2002c: 347, Kontschán 2003b: 55, Kontschán 2003c: 297, Kontschán 2005: 115.

Diagnosis. Length of idiosoma 400-420 µm, width 290-330 µm. Shape oval, posterior margin rounded. Ventroanal setae blade-like. Genital shield of female large, oval, with punctuate ornamentation. Ventroanal shield with larger or smaller alveolar ornamentation. Anterior and pos-

terior margin of perigenital line undulate. Peritreme U-shaped.

Previous records from the Carpathian Basin. Hungary: Kőszeg (Balogh, 1938 a), Bátorliget (Hirschmann, 1990), Bársonyos (Kontschán, 2002 c), Aggtelek National Park (Kontschán, 2003 b), Bársonyos (Kontschán, 2003 c), Őrség (Kontschán, 2005). Slovakia: Bukovské Vrchy, Polana, Povazsky Inovec, Slovensky kras, Vychodoslovenská rovina (Mašán, 2001).

New records. Hungary: Vértes, Gánt, ant nest, 24.08.2002, leg. J. Kontschán; Csévháraszt, ant nest, 07.06.2002, leg. J. Kontschán; Szakonyfalu, ant nest, 22.05.1989, leg. S. Mahunka & L. Mahunka-Papp; Szín from soil, 16. 06.1986, leg. S. Mahunka; Darány, Nagyberek, ant nest, 15.08. 1976, leg. S. Mahunka & L. Mahunka-Papp. Romania: Transylvania, Tordai hasadék, 28.07. 1992, leg. L. Peregovits; Maramures county, Maramures Mts, Petrova, Frumuseana, sidebrook of Tomnatic stream in pine-beech mixed forest, 25.05.2006, leg. Dányi L., Földvári M., Kontschán J. & Murányi D.; Maramures county, Gutai Mts, left side stream of Mara river in a beech forest, 23.05.2006, leg. Dányi L., Földvári M., Kontschán J. & Murányi D.

Acknowledgements – This research was supported by the National R&D Programme “The origin and genesis of fauna of the Carpathian Basin”; contact No: 3B023-04.

REFERENCES

- BALOGH, J. (1938a): Magyarország hangyabolyban élő atkáiról I. *Folia entomologica hungarica*, 3: 106-109.
- BALOGH, J. (1938b): Neue Milben - faunistische Angaben aus dem histor. Ungarn (Uropodina). *Fragmen-ta Faunistica Hungarica*, 1/1: 70-71.
- BERLESE, A. (1903): Acari Iconografica degli Acari Mirmecofili. *Redia*, 1: 299-474.
- BERLESE, A. (1917): Interno agli Uropodidae. *Redia*, 13: 7-16.
- BŁOSZYK, J. (1999): *Geograficzne i ekologiczne zróżnicowanie zgrupowań roztoczy z kohorty Uropodina (Acari: Mesostigmata) w Polsce. I. Uropodina lsów gradowych (Carpinion betuli)*. Publikacja finansowana przez Uniwersytet im. Adama Mickiewicza w Ponanii, 245 pp.
- CANESTRINI, G. (1884): Acari nuovi o poco noti. *Atti del Reale Istituto Veneto di Scienze, Lettere ed Arti*, 6: 693-724.
- CANESTRINI, G. & FANZAGO, F. (1877): Acari italiani. *Atti de Reale Istituto Veneto di Scienze, Lettere ed Arti*, 4: 62.
- FARRIER, M. H. & HENNESEY, M. K. (1996): *Soil-inhabiting and free-living Mesostigmata (Acari: Parasitiformes) from North-America. An annotated checklist with bibliography and index*. North Carolina Agricultural Service, North Carolina State University Raleigh, North Carolina, Technical Bulletin 302, 408 pp.
- HIRSCHMANN, W. (1961): Neuordnungsliste gangsystematisch bearbeiteter Uropodiden-Gattungen. *Acarologie*, 4: 16.
- HIRSCHMANN, W. (1975): Stadien von 8 neuen Trachyuropoda-Arten (Trachyuropodini, Oplitinae). *Acarologie* 21: 101-105.
- HIRSCHMANN, W. (1976a): Adulten-Gruppen und Bestimmungstabelle von 81 Trachyuropoda-Arten (Trachyuropodini, Oplitinae). *Acarologie*, 22: 4-13.
- HIRSCHMANN, W. (1976b): Drei neue Trachyuropoda-Arten der Magna-Gruppe (Trachyuropodini, Oplitinae). *Acarologie*, 22: 16-18.
- HIRSCHMANN, W. (1981): The Uropodina fauna of the Hortobágy National Park (Acari). In: Mahunka, S. (ed.): *The fauna of the Hortobágy National Park I. Akadémiai Kiadó, Budapest*, pp. 341-342.
- HIRSCHMANN, W. (1984): Die Latotutuli-Gruppe, eine neue Adulten-Gruppe der Ganggattung *Oplitis*. Teilegänge, Stadien von 8 neuen Oplitis-Arten aus Kamerun (Trachyuropodini, Oplitinae). *Acarologie*, 31: 156-175.
- HIRSCHMANN, W. (1990): Data to the Uropodina (Acari: Mesostigmata) fauna of the Bátorliget (NE Hungary). In: Mahunka, S. (ed.): *The Bátorliget Nature Reserve - after forty years, 1990. The Hungarian Natural History Museum, Budapest*, pp. 705-706.
- KNEISSL, L. (1907): *Urobovella wasmanni* Kneissl. Eine neue myrmecophile Milbe. *Zeitschrift für Wissenschaftliche Insektenbiologie*, 3: 190-191.
- KNEISSL, L. (1908): Nachtrag zur Beschreibung von U. (Urodiascella) wasmanni mit Aufstellung einer neuen Varietät U. *philoctena* var. *Schmitzi*. *Zeitschrift für Wissenschaftliche Insektenbiologie*, 4: 226-229.
- KONTSCHÁN, J. (2002a): The first record of five Trachyuropoda (Acari: Uropodina) species from Hungary. *Opuscula Zoologica Budapest*, 34: 51-53.
- KONTSCHÁN, J. (2002b): Adatok Komárom-Esztergom Megye korongatka (Acari: Uropodina) faunájához.

- Komárom-Esztergom Megyei Múzeumok Közleményei, 9: 345-351.
- KONTSCHÁN, J. (2003a): Ismeretek a Dél-Dunántúl korongatka- (Acari: Uropodina) faunájához. III. Kárpát-medencei Biológiai Szimpózium, Előadások összefoglalói., 117-120.
- KONTSCHÁN J. (2003b): Uropodina (Acari: Mesostigmata) fauna of Aggteleki Nemzeti Park (NE Hungary). *Folia Musei Historico Naturalis Matrensis*, 27: 53-57.
- KONTSCHÁN, J. (2003c): Újabb adatok Komárom-Esztergom megye korongatka (Acari: Uropodina) faunájához. *Komárom-Esztergom Megyei Múzeumok Közleményei*, 10: 295-301.
- KONTSCHÁN, J. (2004a): Újabb adatok Komárom-Esztergom megye korongatka (Acari: Uropodina) faunájához 2. *Komárom-Esztergom Megyei Múzeumok Közleményei*, 11: 299-304.
- KONTSCHÁN J. (2004b): The first record of the genus *Polyaspinus* Berlese, 1916 (Acari: Uropodina) and three new Uropodina species to the fauna of Ukraine. *Vestnik Zoologii*, 38(3): 77-79.
- KONTSCHÁN, J. (2005): Data to the Uropodina (Acari: Mesostigmata) fauna of the region of Őrség (West-Hungary). *Praenorica Folia Historico-Naturalia*, 8: 113-118.
- LUBBOCK, J. (1881): Observations on ants, bees and wesps. *Zoological Journal of the Linnean Society*, 15: 386.
- LEONARDI, G. (1895): Intorno ad alcune nuove specie di Acari italiani ecc. *Atti della Società Veneto Trentina di Scienze Naturali*, 2: 318.
- MAŠÁN, P. (1999): New species of genera *Trachytes*, *Trichouropoda*, *Nenteria* and *Oplitis* (Acarina, Mesostigmata, Uropodina) from Slovakia. *Biolgia, Bratislava*, 52: 501-514.
- MAŠÁN, P. (2001): Mites of the cohort Uropodina (Acari, Mesostigmata) in Slovenska. *Annotationes Zoologicae et Botanicae*, 223: 1-320.
- MAŠÁN, P. & KALÚZ, S. (1997): K faune rostočové celade Trachyuropoidae (Acarina: Uropodina) na Slovensku. *Entomofauna Carpathica*, 9: 97-100.
- MICHAEL, A. D. (1891): On the association of Gamasidae with ants. *Proceedings of the Zoological Society of London*, 1891(4): 638-570.
- MICHAEL, A. D. (1894): VI. Notes on the Uropodinae. *Journal of the Royal Microscopical Society*, 1894: 289-319.
- PECINA, P. (1980): Additional data on several Czechoslovak members of subfamily Trachyuropodinae Berlese, 1918 (Uropodidae, Mesostigmata). *Acta Universitatis Carolinae Biologica*, 1978: 357-388.
- TOUESSART, E. (1902): Note sur les Uropodinae et descriptions d'espèces nouvelles. *Bulletin de la Société Zoologique de France*, 27: 29-45.
- WASMANN, E. (1899): Weitere Nachträge zum Verzeichniss der Ameisengäste von holländisch Limburg. *Tijdschrift voor Entomologie*, 42: 158-171.
- WIŚNIEWSKI, J. (1993): Die Uropodiden der Erde nach zoogeographischen Regionen und Subregionen geordnet (mit Angabe der Lande). *Acarologie*, 40: 221- 291.
- WIŚNIEWSKI, J. (1996): The Uropodina fauna (Acari) from the Bükk National Park (N. Hungary). In: Mahunka, S. (ed.): *The fauna of the Bükk National Park II. The Hungarian Natural History Museum, Budapest*, pp. 485-486.
- WIŚNIEWSKI, J. & HIRSCHMANN, W. (1992): Die deuteronymphe von *Trachyuropoda formicaria* (Lubbock, 1881) und Stadien von *T. mymecophila* nov. spec. (Acarina, Uropodina) aus Polen. *Acarologia*, 33: 5-15.
- WIŚNIEWSKI, J. & HIRSCHMANN, W. (1995): Drei neue *Oplitis*-Arten (Acarina, Uropodina) aus Ungarn und Indien. *Folia entomologica hungarica*, 56: 215-222.